

PRELIMINARY ESTIMATES OF SUBSISTENCE SALMON HARVEST  
IN THE YUKON RIVER DRAINAGE, 1989

By  
Russell R. Holder  
and  
Helen H. Hamner

Regional Information Report<sup>1</sup> No. 3F90-22

Alaska Department of Fish and Game  
Division of Commercial Fisheries, AYK Region  
333 Raspberry Road  
Anchorage, Alaska 99518

August 1990

---

<sup>1</sup> The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

## **PREFACE**

This report was completed at this time to meet US/Canada project reporting requirements. All harvest estimates in this report are preliminary and subject to revision. Final estimates for 1989 will be published in the Yukon Area 1989 Annual Management Report.

## **SPONSORSHIP**

This investigation was partially funded by US/Canada salmon research Cooperative Agreement Award No. NA90AA-H-FM010.

## INTRODUCTION

Subsistence salmon fishing in the Yukon River drainage has a long history. Subsistence salmon harvest data has been collected by the Division of Commercial Fisheries through the use of personal interviews and/or catch calendars from 1961 to 1987. Throughout this period survey methods and harvest reporting have varied. Additionally, in recent years, subsistence fishing permit catch information has been required for three sections of the upper Yukon area. Due to funding limitations, the Department was unable to send survey crews to all villages in 1983 and 1984 to interview fishermen, however, in 1985 personal interviews were conducted in most villages. During 1986 and 1987, increased funding provided by U.S./Canada negotiation support allowed the most comprehensive subsistence fishery harvest surveys on record. Results from 1986 (Brannian and Gnath 1988) and 1987 (Bergstrom and Gnath 1988) indicated a need for revision of the survey methodology. In 1988, Subsistence Division modified the subsistence harvest survey design and collected the subsistence harvest data (Walker et al 1989). A comprehensive list of all households in the Yukon River drainage was stratified by community. Households were classified into two strata, as usually fishing for subsistence or not usually fishing for subsistence. The revised methodology allowed for calculation of confidence intervals for the first time. From 1986 to the present, Canadian subsistence harvest information has been collected by the Canadian Department of Fisheries and Oceans (DFO).

## METHODS

The subsistence survey methodology developed in 1988 by the Subsistence Division was implemented by the Commercial Fisheries Division in 1989. Table 1 lists surveyed communities and the date of survey. A total of 2,908 households were identified, 1,378 of which were identified as usually fishing for subsistence salmon. Sixty percent of those households who usually fished for salmon were personally interviewed in their home community. In 1989, interviews with lower Yukon area fishermen were conducted in eleven villages, while in the upper Yukon area, interviews were conducted in the fourteen major communities along the mainstem Yukon River and ten communities along significant tributaries of the Yukon River. Surveys were not conducted in the coastal communities of Scammon Bay and Hooper Bay, which harvest salmon bound primarily for the Yukon River. Coastal community harvest was estimated from calendar and post card replies.

A regulation was in effect in 1989 that prohibited non-rural residents from participation in subsistence salmon harvests. Non-rural residents harvested salmon under personal-use fishing regulations. Personal-use harvest estimates were identified separately from the subsistence harvests.

While conducting personal interviews, the subsistence survey participation list was updated and persons not home during the interviews were mailed post card questionnaires. The catch for households not contacted was estimated using the average catch per contacted household. Information regarding numbers of dogs and type and amount of fishing gear was estimated in a similar manner, but is not yet available.

Potential problems with expansion of data in the manner described above should be explained. In some cases, a single fisherman may take several thousand chums for the purpose of feeding large numbers of sled dogs. When data for a village include atypical catches like these, the final expanded value may exceed what could reasonably be expected to have been caught. Conversely, expanded data which does not include a fisherman who made extremely large catches may understate the actual harvest for that village.

Subsistence fishing permits were required in three areas within the upper Yukon drainage: (1) the entire Tanana River drainage; (2) the Yukon River between Hess Creek and Dall River; and (3) the Yukon River between the upstream mouth of Twenty-two Mile Slough and the U.S./Canada border. For those villages in which subsistence permits were required, the preliminary subsistence harvest estimate is the sum of reported harvest from returned permits and unexpanded data from personal interviews conducted in those villages. These estimates may be adjusted after further analysis.

In the District 4 commercial fishery there is only a very limited market for summer chum salmon flesh, while the roe has a significant commercial market. As a result, commercial fishermen extract and sell roe from their catch and retain the carcasses for subsistence use. During the 1980-85 period, it is likely that many fishermen reported this portion of their commercial harvest as subsistence fish. In fact, it is probable that the unmarketable commercial product may have simply replaced a large portion of the subsistence harvest in this area. During 1985, Division of Subsistence personnel conducted subsistence harvest surveys in the villages of Kaltag and Nulato. Questions regarding summer chum harvest were posed in such a way as to eliminate reporting of "surplus" commercially caught fish as subsistence. For this reason, summer chum harvest estimates from these villages for 1985 were much lower than in previous years. Subsistence surveys for the Yukon River drainage since 1986 were conducted in such a manner as to estimate the number of summer chum salmon taken by commercially related activities and those taken by traditional subsistence fishing activities.

## RESULTS AND DISCUSSION

Estimates of subsistence and personal use harvest by village for the entire Yukon River drainage are presented in Table 2. Harvest estimates for commercial, subsistence, and personal use fishery categories for 1989 are presented by district in Table 3. Subsistence harvest estimates for 1989 by species, village, and fishing district with means and 95% confidence intervals are presented for areas not requiring subsistence permits in Tables 4-7.

The estimated Yukon River drainage subsistence salmon harvest in Alaska for 1989 totalled 433,700 fish, and was comprised of 43,240 chinook, 175,729 summer chum, 181,083 fall chum, and 33,648 coho salmon. These estimates do not include commercially caught summer chum salmon retained for subsistence purposes in District 4. An estimated additional 11,405 salmon harvested in personal use fisheries consisted of 2,844 chinook, 2,086 summer chum, 5,508 fall chum, and 967 coho salmon. An estimated additional 13,400 salmon harvested in the Canadian subsistence fishery consisted of 7,500 chinook and 5,900 fall chum salmon. Combining these estimates results in a total Yukon River drainage subsistence and personal use harvest estimate of 458,505 salmon, consisting of 53,584 chinook, 177,815 summer chum, 192,491 fall chum, and 34,615 coho salmon.

#### Lower Yukon Area

During 1989, an estimated 16,163 chinook, 92,723 summer chum, 14,297 fall chum and 9,624 coho salmon were harvested by fishermen representing 658 households for subsistence and personal use in the lower Yukon area (Table 2). Catches of chinook and summer chum salmon were 6% and 41% above the 1984-88 averages, respectively. Catches of fall chum and coho salmon were 43% and 22% below the 1984-88 averages. Fall chum and coho salmon catches were probably slightly higher than reported because some fishing occurred after the interviews were completed.

#### Upper Yukon Area

The 1989 upper Yukon area (excluding Canada) subsistence and personal use harvest was estimated to be 29,921 chinook, 85,092 summer chum, 172,294 fall chum, and 24,991 coho salmon (Table 2). Catches of chinook, fall chum, and coho salmon were 1%, 9%, and 40% below the 1984-88 averages, respectively. The summer chum salmon subsistence harvest estimate for 1989 cannot be compared directly to the 1984-88 average due to the exclusion of commercially caught chum salmon used for subsistence purposes. An estimated total of 47,221 summer chum salmon were taken for subsistence utilization within the District 4 watershed during 1989, with an estimated additional 492,000 summer chum salmon carcasses potentially available for subsistence as a by-product of the commercial roe fishery.

#### Canada

Indian food fish and domestic catch data was collected by a native organization under contract to the Canadian Department of Fisheries and Oceans. The 1989 Canadian non-commercial harvest was estimated to be 7,500 chinook and 5,900 fall chum salmon.

## LITERATURE CITED

- Bergstrom, D.J. and D.G. Gnath. 1988. Subsistence harvest of Pacific salmon in the Yukon River drainage, Alaska, 1987. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 3A88-21, Anchorage.
- Brannian, L.K. and D.G. Gnath. 1988. Subsistence harvest of Pacific salmon in the Yukon River drainage, Alaska, 1986 with an historical review. Alaska Department of Fish and Game, Commercial Fisheries Division, Fishery Research Bulletin 88-03, Juneau.
- Walker, R.J., E.F. Andrews, D.B. Andersen, and N. Shishido. 1989. Subsistence harvest of Pacific salmon in the Yukon River drainage, Alaska, 1977-88. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 3A89-21, Anchorage.

TABLE 1. YUKON AREA COMMUNITIES AND DATES OF COMMUNITY VISITS FOR SUBSISTENCE SALMON SURVEYS, 1989.

<u>Community</u>	<u>Dates of Visit(s)</u>
Hooper Bay	Not Surveyed
Scammon Bay	Not Surveyed
Sheldon Point	August 31
Alakanuk	August 30
Emmonak	August 28-29; September 8
Kotlik	September 6-7
Mountain Village	September 9
Pitkas Point	September 10
St. Mary's	September 11-12
Pilot Station	September 13
Marshall	September 14
Russian Mission	September 15
Holy Cross	September 18-19
Anvik	September 16-17
Shageluk	September 20
Grayling	September 21-22
Kaltag	October 10-11
Nulato	October 11-12
Koyukuk	October 13-18
Galena	October 17-21
Ruby	October 5-6
Huslia	October 16-17
Hughes	October 18-19
Allakaket	October 30-31; November 1
Alatna	October 31
Bettles	October 30
Tanana	October 24-25
Rampart	October 27
Stevens Village	October 26
Beaver	October 26-27
Fort Yukon	November 1-3
Birch Creek	October 27
Circle	October 30
Central	October 30
Eagle	November 9-10
Venetie	November 6-7
Chalkyitsik	October 31; November 1
Manley	November 9-10
Minto	November 10-11
Nenana	November 15
Healy	November 16
Kantishna River	Not Surveyed

Table 2. Preliminary estimates of Yukon River drainage subsistence and personal use salmon harvest, 1989. a

Village	Survey Date	Fishing Households b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Sheldon Pt.	Aug./Sept.	18		168	4,327	610	419			
Alakanuk	Aug./Sept.	88		820	12,108	430	334			
Emmonak	Aug./Sept.	86		854	19,490	155	678			
Kotlik	Sept.	73		1,500	12,284	2,859	2,660			
Personal Use permits		26		338	450	21	70			
Y-1 Subtotal		291	0	3,680	48,659	4,075	4,161	0	0	0
Mt. Village	Sept.	118		2,591	16,248	3,891	2,166			
Pitkas Pt.	Sept.	17		592	4,176	275	601			
St. Marys	Sept.	52		1,592	8,948	1,695	370			
Pilot Station	Sept.	67		1,498	6,783	1,872	379			
Marshall	Sept.	41		1,464	3,927	1,532	1,304			
Y-2 Subtotal		295	0	7,737	40,082	9,265	4,820	0	0	0
Russian Mission	Sept.	39		2,367	2,229	308	20			
Holy Cross	Sept.	33		2,379	1,753	649	623			
Y-3 Subtotal		72	0	4,746	3,982	957	643	0	0	0
Lower Yukon Total c		658	0	16,163	92,723	14,297	9,624	0	0	0
Anvik	Sept.	18		418	11,326	5,540	40			
Shageluk d	Sept.	19		32	8,842	4	0			
Grayling	Sept.	35		1,082	14,570	830	969			
Kaltag	Oct.	33		1,306	632	1,654	792			
Nulato	Oct.	45		2,079	3,410	2,614	276			
Koyukuk	Oct.	22		1,003	381	2,460	110			
Galena	Oct.	62		1,374	6,216	6,436	415			
Ruby	Oct.	33		1,016	1,844	6,599	1,069			
Y-4 Subtotal		267	0	8,310	47,221 e	26,137	3,671	0	0	0
Tanana	Oct.	70		3,008	7,756	40,845	5,518			
Rampart	Oct.	14		2,383	21	1,854	65			
Fbks. Pers-Use f permits		45		2,011	316	3,529	88			
Stevens Village	Oct.	18		1,993	2,606	4,649	156			
Beaver	Oct.	18		1,694	124	6,277	1,739			
Ft. Yukon	Nov.	63		4,032	1,481	19,230	613			
Circle/Central g	Oct.	20		1,450	307	3,616	1			
Eagle h	Nov.	50		1,855	466	9,270	0			
Y-5 Subtotal		298	0	18,426	13,077	89,270	8,180	0	0	0
Main River Totals		1,223	0	42,899	153,021	129,704	21,475	0	0	0

-Continued-



Table 2. Preliminary estimates of Yukon River drainage subsistence and personal use salmon harvest, 1989 (Continued). a

Village	Survey Date	Fishing Households b	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Manley i	Nov.	20		614	2,301	14,861	4,513			
Minto i	Nov.	22		233	907	1,276	750			
Nenana i	Nov.	34		955	3,210	21,302	6,314			
Fairbanks j	Pers-use Permits	179		495	1,320	1,958	809			
Y-6 Subtotal		255	0	2,297	7,738	39,397	12,386	0	0	0
Kusliia	Oct.	33		177	10,005	1,728	150			
Hughes	Oct.	13		181	3,687	260	91			
Allakaket k	Oct.	34		438	2,997	2,018	279			
Koyukuk R. Subtotal		80	0	796	16,689	4,006	520	0	0	0
Venetie	Nov.	19		92	31	10,484	2			
Chalkyitsik	Oct.	12		0	336	3,000	232			
Subt Chandalar/Black Rivers		31	0	92	367	13,484	234	0	0	0
Subtotal Upper Yukon (Alaska)		931	0	29,921	85,092	172,294	24,991	0	0	0
Yukon River Drainage (Alaska) Total		1,589	0	46,084	177,815	186,591	34,615	0	0	0
Old Crow l		n	n		n	2,900	n	n	n	n
Yukon River Mainstem Canada l,m		n	n	7,500	n	3,000	n	n	n	n
Yukon Territory l Totals		n	n	7,500	n	5,900	n	n	n	n
Grand Total Yukon River Drainage		1,589	0	53,584	177,815	192,491	34,615	0	0	0

a Subsistence data collected by Commercial Fisheries Division.

b Estimated number of households that fished.

c Does not include Hooper Bay and Scammon Bay harvest of 16 chinook, 2,341 summer chum, 156 fall chum and 213 coho salmon.

d Shageluk harvest data from households fishing in mainstem Yukon River and Innoko River.

e Does not include fish taken during commercial roe fishery that were used or sold for dog food.

f Data from fishermen who fished between Hess Creek and Dall River (Fairbanks Fish Camp). A total of 45 permits issued of which 42 reported catches.

g Includes Circle and vicinity, and Central, 15 subsistence permits issued and 14 returned.

h Includes Eagle and vicinity, and Eagle Village, 35 subsistence permits issued with 34 reporting catches.

i Includes subsistence permit information. Does not include Kantishna River and Healy harvest of 0 chinook, 50 summer chum, 12,991 fall chum and 3,264 coho salmon.

j Data from fishermen that fished on the Tanana River, 179 permits issued of which 162 reported catches.

k Alatna combined with Allakaket.

l Indian Food Fish and Domestic catch data from Department of Fisheries & Oceans, Whitehorse, YT (preliminary).

m Includes 500 fall chum salmon harvested from the Porcupine River.

n Data not available.

Table 3. Yukon River drainage total utilization of salmon by district and country, 1989. (Data Preliminary)

District	Fishery	Chinook	Summer Chum	Fall Chum	Coho
1	Commercial	59,153	547,631	77,876	24,672
	Subsistence	3,342	48,209	4,054	4,091
	Personal Use	338	450	21	70
	Total	62,833	596,290	81,951	28,833
2	Commercial	33,225	343,962	97,906	38,522
	Subsistence	7,737	40,082	9,265	4,820
	Total	40,962	384,044	107,171	43,342
3	Commercial	1,645	7,578	15,332	3,988
	Subsistence	4,746	3,982	957	643
	Total	6,391	11,560	16,289	4,631
Total Lower Yukon	Commercial	94,023	899,171	191,114	67,182
	Subsistence	15,825	92,273	14,276	9,554
	Personal Use	338	450	21	70
	Total	110,186	991,894	205,411	76,806
4	Commercial	2,788	510,244 a	15,183	3
	Subsistence b	9,106	63,910 d	30,143	4,191
	Total	11,894	574,154	45,326	4,194
5	Commercial	3,286	568	22,204	84
	Subsistence c	16,507	13,128 i	99,225 i	8,326
	Personal Use	2,011	316	3,529	88
	Total	21,804	14,012	124,958	8,498
6	Commercial	1,741	47,527	73,084 e	18,214 f
	Subsistence	1,802	6,418 i	37,439 i	11,577
	Personal Use	495	1,320	1,958	809
	Total	4,038	55,265	112,481	30,600
Total Upper Yukon	Commercial	7,815	558,339	110,471	18,301
	Subsistence	27,415	83,456	166,807	24,094
	Personal Use	2,506	1,636	5,487	897
	Total	37,736	643,431	282,765	43,292
Total Yukon Area (Alaska)	Commercial	101,838	1,457,510	301,585	85,483
	Subsistence	43,240	175,729	181,083	33,648
	Personal Use	2,844	2,086	5,508	967
	Total	147,922	1,635,325	488,176	120,098
Total Canada g	Commercial	9,789	0	17,549	0
	Subsistence h	7,500	0	5,900	0
	Total	17,289	0	23,449	0
Grand Total	Commercial	111,627	1,457,510	319,134	85,483
	Subsistence	50,740	175,729	186,983	33,648
	Personal Use	2,844	2,086	5,508	967
	Total	165,211	1,635,325	511,625	120,098

- a Total estimated commercial related harvest, based on average roe weight per female and proportion of males present in the fishery.  
b Includes Innoko and Koyukuk River drainages.  
c Includes Chandalar and Black River drainages.  
d Does not include commercial related harvest.  
e Includes 16,641 fall chum salmon sold as part of a new test fishing project.  
f Includes 2,130 coho salmon sold as part of a new test fishing project.  
g Data from Department of Fisheries and Oceans, Whitehorse, YT.  
h Combined Indian Food and Domestic fisheries (preliminary).  
i Includes commercially harvested fish retained for subsistence needs.

Table 4. Preliminary estimates of Yukon River chinook salmon subsistence harvest for villages that do not require subsistence permits. Confidence intervals are reported at the 95% level.

Community	Doesn't Usually Fish				Usually Fishes				Combined			
	Total HH	Total Cont'd	Mean	SD	Total HH	Cont'd	Mean	SD	Total HH	Cont'd	Est. Total	+/-
Alakanuk	38	7	0.6	1.1	88	45	9.1	18.3	126	52	820	330
Kotlik	28	8	3.3	9.2	73	39	19.3	25.1	101	47	1,500	421
Scammon Bay	50	0	-	0.0	2	2	1.0	1.4	52	2	2	-
Hooper Bay	92	1	0.0	0.0	10	7	1.4	2.1	102	8	14	9
Sheldon's Point	5	3	3.3	5.8	18	10	8.4	8.4	23	13	168	66
Emmonak	56	3	3.3	5.8	86	25	7.8	13.7	142	28	854	527
District 1	269	22	1.2	12.3	277	128	11.0	35.1	546	150	3,358	753
Pilot Station	36	13	0.4	1.4	67	32	22.2	32.3	103	45	1,498	543
Marshall	20	15	10.3	18.8	41	27	30.7	27.0	61	42	1,464	261
Mountain Village	20	6	8.3	20.4	118	42	20.5	54.0	138	48	2,591	1,571
Pitkas Point	7	4	0.0	0.0	17	6	34.8	30.0	24	10	592	328
St. Mary's	32	21	1.5	5.5	52	31	29.7	36.2	84	52	1,592	423
District 2	115	59	3.8	28.3	295	138	24.8	83.0	410	197	7,738	1,765
Holy Cross	16	14	3.2	12.0	33	26	70.5	71.1	49	40	2,379	417
Russian Mission	19	7	0.0	0.0	39	20	60.7	68.4	58	27	2,367	816
District 3	35	21	1.5	12.0	72	46	65.2	98.7	107	67	4,746	916
Allakaket	12	6	4.2	10.2	28	22	13.5	22.2	40	28	429	139
Hughes	12	5	0.0	0.0	13	10	13.9	21.4	25	15	181	83
Grayling	16	6	0.0	0.0	35	22	30.9	40.5	51	28	1,082	361
Ruby	44	9	0.0	0.0	33	23	30.8	47.6	77	32	1,016	354
Huslia	30	10	0.0	0.0	33	30	5.4	7.3	63	40	177	26
Koyukuk	20	8	0.0	0.0	22	15	45.6	87.7	42	23	1,003	551
Invik	15	11	0.0	0.0	18	9	23.2	18.1	33	20	418	151
altag	21	3	0.0	0.0	33	26	39.6	52.9	54	29	1,306	309
dettles	28	4	0.0	0.0	3	1	0.0	0.0	31	5	0	0
Galena	113	15	0.0	0.0	68	48	20.2	27.8	181	63	1,374	290
Shageluk	14	8	0.0	0.0	19	9	1.7	2.5	33	17	32	23
Alatna	5	1	0.0	0.0	6	6	1.5	2.5	11	7	9	0
Nulato	46	12	0.4	1.4	45	31	45.8	66.1	91	43	2,079	585
District 4	376	98	0.2	10.3	356	252	25.4	144.5	732	350	9,106	1,063
Circle Vicinity	0	0	-	0.0	2	0	-	0.0	2	0	0	-
Birch Creek	7	2	0.0	0.0	6	3	0.0	0.0	13	5	0	0
Beaver	19	3	3.7	6.4	18	8	90.3	102.0	37	11	1,694	956
Chalkyitsik	20	1	0.0	0.0	12	6	0.0	0.0	32	7	0	0
Tanana	66	13	0.0	0.0	70	45	43.0	79.8	136	58	3,008	975
Venetie	43	6	0.0	0.0	19	11	4.8	10.3	62	17	92	75
District 5	155	25	0.4	6.4	127	73	37.2	129.9	282	98	4,794	1,368
All districts	950	225	1.7		1,127	637	26.8		2,077	862	29,743	2,743

Table 5. Preliminary estimates of Yukon River summer chum salmon subsistence harvest for villages that do not require subsistence permits. Confidence intervals are reported at the 95% level.

Community	Doesn't Usually Fish				Usually Fishes				Combined			
	Total HH	Total Cont'd	Mean	SD	Total HH	HH Cont'd	Mean	SD	Total HH	HH Cont'd	Est. Total	+/-
Alakanuk	38	7	73.0	124.4	88	45	106.1	88.9	126	52	12,108	3,544
Kotlik	28	8	56.3	111.6	73	39	146.7	174.2	101	47	12,284	3,282
Scammon Bay	50	0	-	0.0	2	2	24.0	33.9	52	2	48	-
Hooper Bay	92	1	0.0	0.0	10	7	229.3	194.9	102	8	2,293	791
Sheldon's Point	5	3	208.3	180.9	18	10	182.5	159.6	23	13	4,327	1,352
Emmonak	56	3	89.0	79.1	86	25	168.7	199.0	142	28	19,490	7,463
District 1	269	22	38.6	258.6	277	128	145.0	377.4	546	150	50,549	9,026
Pilot Station	36	13	19.2	48.0	67	32	90.9	112.4	103	45	6,783	2,030
Marshall	20	15	31.1	77.9	41	27	80.6	108.7	61	42	3,927	1,059
Mountain Village	20	6	87.8	202.2	118	42	122.8	143.1	138	48	16,248	4,911
Pitkas Point	7	4	0.0	0.0	17	6	245.7	155.9	24	10	4,176	1,706
St. Mary's	32	21	5.7	21.9	52	31	168.6	155.8	84	52	8,948	1,821
District 2	115	59	28.3	223.0	295	138	124.8	305.8	410	197	40,082	5,966
Holy Cross	16	14	0.0	0.0	33	26	53.1	73.2	49	40	1,753	428
Russian Mission	19	7	0.0	0.0	39	20	57.2	69.2	58	27	2,229	826
District 3	35	21	0.0	0.0	72	46	55.3	100.7	107	67	3,987	930
Allakaket	12	6	8.3	20.4	28	22	94.5	117.4	40	28	2,747	651
Hughes	12	5	0.0	0.0	13	10	283.6	312.6	25	15	3,687	1,210
Grayling	16	6	0.0	0.0	35	22	416.3	656.0	51	28	14,570	5,847
Ruby	44	9	0.0	0.0	33	23	55.9	120.0	77	32	1,844	891
Muslia	30	10	0.0	0.0	33	30	303.2	495.0	63	40	10,005	1,763
Koyukuk	20	8	0.0	0.0	22	15	17.3	32.6	42	23	381	205
Anvik	15	11	1.4	4.5	18	9	628.1	1234.0	33	20	11,326	10,261
Kaltag	21	3	0.0	0.0	33	26	19.2	52.1	54	29	632	304
Bettles	28	4	0.0	0.0	3	1	25.0	0.0	31	5	75	0
Galena	113	15	0.0	0.0	68	48	91.4	306.5	181	63	6,216	3,197
Shageluk	14	8	187.5	530.3	19	9	327.2	509.2	33	17	8,842	5,689
Alatna	5	1	0.0	0.0	6	6	41.7	70.9	11	7	250	0
Nulato	46	12	0.0	0.0	45	31	75.8	276.5	91	43	3,410	2,443
District 4	376	98	7.3	530.7	356	252	172.0	1662.0	732	350	63,985	13,927
Circle Vicinity	0	0	-	0.0	2	0	-	0.0	2	0	0	-
Birch Creek	7	2	0.0	0.0	6	3	0.0	0.0	13	5	0	0
Beaver	19	3	0.0	0.0	18	8	6.9	14.4	37	11	124	134
Chalkyitsik	20	1	0.0	0.0	12	6	28.0	68.6	32	7	336	466
Tanana	66	13	0.0	0.0	70	45	110.8	281.6	136	58	7,756	3,443
Venetie	43	6	0.0	0.0	19	11	1.6	3.6	62	17	31	27
District 5	155	25	0.0	0.0	127	73	64.9	290.3	282	98	8,247	3,477
All districts	950	225	21.2		1,127	637	131.4		2,077	862	166,845	17,999

Table 6. Preliminary estimates of Yukon River fall chum salmon subsistence harvest for villages that do not require subsistence permits. Confidence intervals are reported at the 95% level.

Community	Doesn't Usually Fish				Usually Fishes				Combined			
	Total HH	Total Cont'd	Mean	SD	Total HH	Cont'd	Mean	SD	Total HH	Cont'd	Est. Total	+/-
Alakanuk	38	7	0.0	0.0	88	45	4.9	14.4	126	52	430	258
Kotlik	28	8	16.9	24.3	73	39	32.7	69.6	101	47	2,859	1,159
Scammon Bay	50	0	-	0.0	2	2	5.0	7.1	52	2	10	-
Hooper Bay	92	1	0.0	0.0	10	7	14.6	37.7	102	8	146	153
Sheldon's Point	5	3	0.0	0.0	18	10	33.9	61.8	23	13	610	460
Emmonak	56	3	0.0	0.0	86	25	1.8	6.0	142	28	155	169
District 1	269	22	1.8	24.3	277	128	13.5	101.8	546	150	4,210	1,293
Pilot Station	36	13	0.0	0.0	67	32	27.9	93.6	103	45	1,872	1,570
Marshall	20	15	7.3	28.1	41	27	33.8	60.8	61	42	1,532	568
Mountain Village	20	6	0.8	2.0	118	42	32.8	52.8	138	48	3,891	1,513
Pitkas Point	7	4	0.0	0.0	17	6	16.2	30.1	24	10	275	330
St. Mary's	32	21	0.7	3.1	52	31	32.2	65.2	84	52	1,695	759
District 2	115	59	1.6	28.4	295	138	30.8	142.9	410	197	9,265	2,400
Holy Cross	16	14	3.6	13.4	33	26	17.9	34.7	49	40	649	207
Russian Mission	19	7	0.0	0.0	39	20	7.9	22.8	58	27	308	273
District 3	35	21	1.6	13.4	72	46	12.5	41.6	107	67	957	342
Allakaket	12	6	3.3	8.2	28	22	70.1	155.8	40	28	2,003	845
Hughes	12	5	0.0	0.0	13	10	20.0	33.0	25	15	260	128
Grayling	16	6	0.0	0.0	35	22	23.7	52.4	51	28	830	467
Ruby	44	9	29.8	82.8	33	23	160.3	351.0	77	32	6,599	3,361
Huslia	30	10	0.0	0.0	33	30	52.4	183.2	63	40	1,728	652
Toyukuk	20	8	0.0	0.0	22	15	111.8	357.1	42	23	2,460	2,243
Wiwik	15	11	0.0	0.0	18	9	307.8	915.9	33	20	5,540	7,616
Altag	21	3	0.0	0.0	33	26	50.1	104.6	54	29	1,654	611
Bettles	28	4	0.0	0.0	3	1	0.0	0.0	31	5	0	0
Galena	113	15	0.0	0.0	68	48	94.6	213.2	181	63	6,436	2,224
Shageluk	14	8	0.0	0.0	19	9	0.2	0.7	33	17	4	6
Alatna	5	1	0.0	0.0	6	6	2.5	4.2	11	7	15	0
Nulato	46	12	0.0	0.0	45	31	58.1	82.2	91	43	2,614	727
District 4	376	98	3.6	83.2	356	252	80.9	1102.0	732	350	30,143	9,030
Circle Vicinity	0	0	-	0.0	2	0	-	0.0	2	0	0	-
Birch Creek	7	2	0.0	0.0	6	3	0.0	0.0	13	5	0	0
Beaver	19	3	0.7	1.2	18	8	348.0	698.7	37	11	6,277	6,496
Chalkyitsik	20	1	0.0	0.0	12	6	250.0	295.0	32	7	3,000	2,003
Tanana	66	13	69.2	249.6	70	45	518.2	872.4	136	58	40,845	13,345
Venetie	43	6	100.0	181.7	19	11	325.5	297.5	62	17	10,484	6,190
District 5	155	25	57.3	308.7	127	73	407.3	1193.6	282	98	60,605	16,206
All districts	950	225	9.3		1,127	637	90.6		2,077	862	105,179	18,754

Table 7. Preliminary estimates of Yukon River coho salmon subsistence harvest for villages that do not require subsistence permits. Confidence intervals are reported at the 95% level.

Community	Doesn't Usually Fish				Usually Fishes				Combined			
	Total HH	Total Cont'd	Mean	SD	Total HH	HH Cont'd	Mean	SD	Total HH	HH Cont'd	Est. Total	+/-
Alakanuk	38	7	0.0	0.0	88	45	3.8	8.5	126	52	334	152
Kotlik	28	8	28.8	42.9	73	39	25.4	60.5	101	47	2,660	1,179
Scammon Bay	50	0	-	0.0	2	2	1.0	1.4	52	2	2	0
Hooper Bay	92	1	0.0	0.0	10	7	21.1	26.4	102	8	211	107
Sheldon's Point	5	3	72.0	110.9	18	10	3.3	7.1	23	13	419	400
Emmonak	56	3	0.0	0.0	86	25	7.9	28.1	142	28	678	798
District 1	269	22	4.3	118.9	277	128	11.3	72.6	546	150	4,305	1,491
Pilot Station	36	13	0.0	0.0	67	32	5.7	16.2	103	45	379	272
Marshall	20	15	40.0	154.9	41	27	12.3	26.7	61	42	1,304	820
Mountain Village	20	6	0.8	2.0	118	42	18.2	31.9	138	48	2,166	915
Pitkas Point	7	4	0.0	0.0	17	6	35.3	36.2	24	10	601	396
St. Mary's	32	21	0.6	2.4	52	31	6.7	20.4	84	52	370	238
District 2	115	59	7.3	155.0	295	138	13.5	61.0	410	197	4,820	1,341
Holy Cross	16	14	3.6	13.4	33	26	17.2	35.2	49	40	623	209
Russian Mission	19	7	0.0	0.0	39	20	0.5	2.2	58	27	20	27
District 3	35	21	1.6	13.4	72	46	8.1	35.3	107	67	643	211
Allakaket	12	6	0.0	0.0	28	22	10.0	44.0	40	28	279	239
Hughes	12	5	0.0	0.0	13	10	7.0	15.3	25	15	91	59
Grayling	16	6	0.0	0.0	35	22	27.7	49.4	51	28	969	440
Ruby	44	9	1.3	4.0	33	23	30.6	77.3	77	32	1,069	583
Hustlia	30	10	0.0	0.0	33	30	4.5	13.0	63	40	150	46
Koyukuk	20	8	0.0	0.0	22	15	5.0	13.0	42	23	110	81
Anvik	15	11	0.0	0.0	18	9	2.2	6.7	33	20	40	55
Kaltag	21	3	0.0	0.0	33	26	24.0	38.7	54	29	792	226
Bettles	28	4	0.0	0.0	3	1	0.0	0.0	31	5	0	0
Galena	113	15	0.0	0.0	68	48	6.1	13.8	181	63	415	144
Shageluk	14	8	0.0	0.0	19	9	0.0	0.0	33	17	0	0
Alatna	5	1	0.0	0.0	6	6	0.0	0.0	11	7	0	0
Mulato	46	12	0.0	0.0	45	31	6.1	19.2	91	43	276	169
District 4	376	98	0.2	4.0	356	252	11.6	114.1	732	350	4,190	840
Circle Vicinity	0	0	-	0.0	2	0	-	0.0	2	0	0	-
Birch Creek	7	2	0.0	0.0	6	3	0.0	0.0	13	5	0	0
Beaver	19	3	0.0	0.0	18	8	96.6	273.3	37	11	1,739	2,541
Chalkyitsik	20	1	0.0	0.0	12	6	19.3	41.1	32	7	232	279
Tanana	66	13	1.8	6.7	70	45	77.1	172.5	136	58	5,518	2,119
Venetie	43	6	0.0	0.0	19	11	0.1	0.3	62	17	2	2
District 5	155	25	0.8	6.7	127	73	58.0	325.8	282	98	7,491	3,320
All districts	950	225	5.1		1,127	637	17.3		2,077	862	21,449	3,975